IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Lonnie O. Ingram, *et al.*

U.S. Serial No.: 09/885297

Filed: June 19, 2001

For: *Methods and Compositions for Simultaneous Saccharification and Fermentation*

Attorney Docket No.: BCI-024CP

Group Art Unit: 1652

Examiner: Manjunath N. Rao

Commissioner for Patents
Post Office Box 1450
Alexandria, VA 22313-1450

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Post Office Box 1450, Alexandria, VA 22313-1450 on the date set forth below.

June 24, 2003
Date of Signature and of Mail Deposit

By: Peter C. Lauro
Peter C. Lauro
Registration No. 32,360
Attorney for Applicants

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Applicants and their Attorney are aware of the following publications and information, listed on the attached PTO Form 1449, and in accordance with 37 CFR §1.97 hereby submit these publications for the Examiner's consideration. Reference Nos. A11, A18, A19, B8, B13, D3, D17, E2 and E4 were cited in an International Search Report during the prosecution of PCT/US01/19690 dated March 4, 2002 which corresponds to the above referenced application. A copy of the report and each publication in PTO Form 1449 is enclosed. Furthermore, in accordance with 37 CFR §1.704(d), Applicants note that this communication was not received by any individual designated in §1.56(c) more than thirty days prior to the filing of this statement.

This statement is not to be interpreted as a representation that the cited publications are material, that an exhaustive search has been conducted, or that no other relevant information exists. Nor shall the citation of any publication herein be construed *per se* as a representation that such publication is prior art. Moreover, Applicants understand that the Examiner will make an independent evaluation of the cited publications.

In accordance with 37 CFR §1.97(c)(2) and §1.17(p), please charge the **$180.00** submission fee to our Deposit Order Account No. 12-0080. Please charge any necessary additional fees or credit any overpayments to our Deposit Order Account No. 12-0080.

Respectfully submitted,

LAHIVE & COCKFIELD, LLP

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Date: **June 24, 2003**

Enclosures

APPLICANT FACSIMILE OF FORM PTO-1449 (REV 7-80)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

LIST OF PUBLICATIONS CITED BY APPLICANT
(Use several sheets if necessary)

ATTY DOCKET NO	SERIAL NO.
BCI-024CP	09/885297
APPLICANT: Ingram, Lonnie O. *et al.*	
FILING DATE: June 19, 2001	GROUP: 1652

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A1	3,990,944	11/76	Gauss *et al.*	195	33	
	A2	5,000,000	03/91	Ingram *et al.*	435	161	
	A3	5,028,539	07/91	Ingram *et al.*	435	161	
	A4	5,162,516	11/92	Ingram *et al.*	536	27	
	A5	5,424,202	06/95	Ingram *et al.*	435	161	
	A6	5,482,846	01/96	Ingram *et al.*	435	161	
	A7	5,487,989	01/96	Fowler *et al.*	435	165	
	A8	5,554,520	09/96	Fowler *et al.*	435	165	
	A9	5,821,093	10/98	Ingram *et al.*	435	161	

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
	A10	WO 98/45425 A1	10/98	WO				
	A11	WO 00/71729 A2,A3	11/00	WO				

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

	A12		Asghari *et al.* (1996) Ethanol production from hemicellulose hydrolysates of agricultural residues using genetically engineered *Escherichia coli* strain KO11. *J. Ind. Microbiol.* 16:42-47
	A13		Barbosa *et al.* (1992) Expression of the *Zymomonas mobilis* alcohol dehydrogenase II (*adh*B) and pyruvate decarboxylase (*pdc*) genes in *Bacillus. Current Microbiol.* 28:279-282
	A14		Barras *et al.* (1994) Extracellular enzymes and pathogenesis of soft-rot Erwinia. *Annu. Rev. Phytopathol.* 32:201-234
	A15		Beall *et al.* (1991) Parametric studies of ethanol production from xylose and other sugars by recombinant *Escherichia coli. Biotechnol. Bioeng.* 38:296-303
	A16		Beall *et al.* (1992) Conversion of hydrolysates of corn cobs and hulls into ethanol by recombinant *Escherichia coli* B containing integrated genes for ethanol production. *Biotechnol. Lett.* 14:857-862
	A17		Beall, *et al.* (1993) Genetic engineering of soft-rot bacteria for ethanol production from lignocellulose. *J. Indust. Microbiol.* 11:151-155
	A18		Boyer, M.-H. *et al.* (1987) Isolation of the gene encoding the major endoglucanase of erwinia chrysanthemi homology between cel genes of two strains of erwinia-chrysanthemi. *FEMS Microbiol. Lett.* 41(3):351-6
	A19		Boyer, M.-H. *et al.* (1987) Characterization of a new endoglucanase from Erwinia chrysanthemi. *Eur. J. Biochem.* 162(2):311-6

Examiner	Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

APPLICANT FACSIMILE OF FORM PTO-1449 REV 7-88	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO	SERIAL NO.
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OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

	B1		Brooks *et al.* (1995) Conversion of mixed waste office paper to ehtanol by genetically engineered *Klebsiella oxytoca* strain P2. *Biotechnol. Progress.* 11:619-625
	B2		Burchhardt *et al.* (1992) Conversion of xylan to ethanol by ethanologenic strains of Escherichia coli and Klebsiella oxytoca. *Appl. Environ. Microbiol.* 58:1128-1133
	B3		Cho, K.M. *et al.* (1999) Novel SSF process for ethanol production from microcrystalline cellulose using the δ-integrated recombinant yeast, *Saccharomyces cerevisiae L2612δGC. J. Microbiol. Biotechnol.* 9:340-345
	B4		Conway, T. *et al.* (1987) Cloning and sequencing of the alcohol dehydrogenase II gene from Zymomonas mobilis. *J. Bacteriol.* 169(6):2591-7
	B5		Conway *et al.* (1987) Gene expression in Zymomonas mobilis: promoter structure and identification of membrane anchor sequences forming functional lacZ' fusion proteins. *J. Bacteriol.* 169:2327-2335
	B6		Doran *et al.* (1993) Fermentation of crystalline cellulose to ethanol by *Klebsiella oxytoca* containing chromosomally integrated *Zymomonas mobilis* genes. *Biotechnol. Progress.* 9:533-538
	B7		Doran *et al.* (1994) Saccharification and fermentation of sugar cane bagasse by *Klebsiella oxytoca* P2 containing chromosomally integrated genes encoding the *Zymomonas mobilis* ethanol pathway. *Biotechnol. Bioeng.* 44:240-247
	B8		Fierobe, H.-P. *et al.* (1993) Purification and characterization of endoglucanase C from Clostridium cellulolyticum. Catalytic comparison with endoglucanase A. *Eur. J. Biochem.* 217(2):557-65
	B9		Figurski *et al.* (1979) Replication of an origin-containing derivative of plasmid RK2 dependent on a plasmid function provided in trans. *Proc. Natl. Acad. Sci. USA.* 76: 1648-1652
	B10		Grohmann *et al.* (1994) Fermentation of galacturonic acid and other sugars in orange peel hydrolysates by the ethanologenic strain of *Escherichia coli. Biotechnol. Lett.* 16:281-286
	B11		Guimaraes *et al.* (1992) Ethanol production from starch by recombinant *Escherichia coli* containing integrated genes for ethanol production and plasmid genes for saccharification. *Biotechnol. Lett.* 14:415-420
	B12		Guimaraes *et al.* (1992) Fermentation of sweet whey by ethanologenic *Escherichia coli. Biotechnol. Bioeng.* 40:41-45
	B13		Guiseppi, A. et al. (1991) Sequence analysis of the cellulase-encoding celY gene of Erwinia chrysanthemi: a possible case of interspecies gene transfer. *Gene.* 106(1):109-14
	B14		Hahn-Hägerdal *et al.* (1994) An interlaboratory comparison of the performance of ethanol-producing micro-organisms in a xylose-rich acid hydrolysate. *Appl. Microbiol. Biotechnol.* 41:62-72
	B15		He *et al.* (1991) Cloned Erwinia chrysanthemi out genes enable Escherichia coli to selectively secrete a diverse family of heterologous proteins to its milieu. *Proc. Natl. Acad. Sci. U.S.A.* 88(3):1079-83
	B16		Hueck *et al.* (1998) Type III protein secretion systems in bacterial pathogens of animals and plants. *Microbiol. Mol. Biol. Rev.* 62(2):379-433

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OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

	C1		Ingram *et al.* (1987) Genetic engineering of ethanol production in Escherichia coli. *Appl. Environ. Microbiol.* 53(10):2420-5
	C2		Ingram *et al.* (1988) Expression of different levels of ethanologenic enzymes from *zymomonas mobilis* in recombinant strains of *Escherichia coli. Appl. Environ. Microbiol.* 54:397-404
	C3		Ingram, *et al.* (1999) Enteric bacterial catalysts for fuel ethanol production. *Biotechnol. Prog.* 15:855-866
	C4		Kuhnert, P. *et al.* (1997) Detection system for Escherichia coli-specific virulence genes: absence of virulence determinants in B and C strains. *Appl. Environ. Microbiol.* 63(2):703-9
	C5		Lai *et al.* (1996)Cloning of cellobiose phosphoenolpyruvate-dependent phosphotransferase genes: Functional expression in recombinant *Escherichia coli* and identification of a putative binding region for disaccharides. *Appl. Environ. Microbiol.* 63:355-363
	C6		Lindeberg *et al.* (1992) Analysis of eight out genes in a cluster required for pectic enzyme secretion by Erwinia chrysanthemi: sequence comparison with secretion genes from other gram-negative bacteria. *J. Bacteriol.* 174(22):7385-97
	C7		Lindeberg *et al.* (1996) Complementation of deletion mutations in a cloned functional cluster of Erwinia chrysanthemi out genes with Erwinia carotovora out homologues reveals OutC and OutD as candidate gatekeepers of species-specific secretion of proteins via the type II pathway. *Mol. Microbiol.* 20(1):175-90
	C8		Lynd *et al.* (1991) Fuel ethanol from cellulosic biomass. *Science* 251:1318-1323
	C9		Martinez-Morales, F. *et al.* (1999) Chromosomal integration of heterologous DNA in Escherichia coli with precise removal of markers and replicons used during construction. *J. Bacteriol.* 181(22):7143-8
	C10		Moniruzzaman *et al.* (1996) Ethanol production from afex pretreated corn fiber by recombinant bacteria. *Biotechnol. Lett.* 18:985-990
	C11		Moniruzzaman, M. *et al.* (1997) Extracellular melibiose and fructose are intermediates in raffinose catabolism during fermentation to ethanol by engineered enteric bacteria. *J. Bacteriol.* 179(6):1880-6
	C12		Moniruzzaman *et al.* (1998) Ethanol production from dilute acid hydrolysate of rice hulls using genetically engineered *Escherichia coli. Biotechnol. Lett.* 20:943-947
	C13		Murata *et al.* (1990) Characterization of transposon insertion out- mutants of Erwinia carotovora subsp. carotovora defective in enzyme export and of a DNA segment that complements out mutations in E. carotovora subsp. carotovora, E. carotovora subsp. atroseptica, and Erwinia chrysanthemi. *J. Bacteriol.* 172:2970-2978
	C14		Ohta, K. *et al.* (1991) Genetic improvement of Escherichia coli for ethanol production: chromosomal integration of Zymomonas mobilis genes encoding pyruvate decarboxylase and alcohol dehydrogenase II. *Appl. Environ. Microbiol.* 57(4):893-900
	C15		Okamoto *et al.* (1994) Cloning of the Acetobacter xylinum cellulase gene and its expression in Escherichia coli and Zymomonas mobilis. *Appl. Microbiol. Biotechnol.* 42(4):563-8
	C16		Osman, *et al.* (1985) Mechanism of ethanol inhibition of fermentation in Zymomonas mobilis CP4. *J. Bact.* 164:173-180

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OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

	D1		Nidetzky, *et al.* (1995) *Synergistic interaction of cellulases from Trichoderma reesei during cellulose degradation* p.90-112
	D2		Pósfai, G. *et al.* (1997) Versatile insertion plasmids for targeted genome manipulations in bacteria: isolation, deletion, and rescue of the pathogenicity island LEE of the Escherichia coli O157:H7 genome. *J. Bacteriol.* 179(13):4426-8
	D3		Poulsen, O.M. *et al.* (1992) Degradation of microcrystalline cellulose synergism between different endoglucanases of cellulomonas-sp atcc 21399. *Biotech. Bioeng.* 39(1):121-23
	D4		Pugsley *et al.* (1993) The complete general secretory pathway in gram-negative bacteria. *Microbiol. Rev.* 57(1):50-108
	D5		Pugsley *et al.* (1997) Recent progress and future directions in studies of the main terminal branch of the general secretory pathway in Gram-negative bacteria--a review. *Gene* 192: 13-19
	D6		Riedel, K. *et al.* (1997) Synergistic interaction of the *Clostridium stercorarium* cellulases avicelase I (CelZ) and avicelase II (CelY) in the degradation of microcrystalline cellulose. *FEMS Microbiol. Lett.* 147:239-243
	D7		Saito *et al.* (1990) Expression of a thermostable cellulase gene from a thermophilic anaerobe in *Saccharomyces cerevisiae. J. Ferment. Bioeng.* 69:282-286
	D8		Sheehan, J., (1994) Bioconversion for production of renewable transportation fuels in the United States. *Amer. Chem. Soc.* pp 1-52
	D9		Su *et al.* (1993) Simultaneous expression of genes encoding endoglucanase and β-glucosidase in *Zymomonas mobilis. Biotechnol. Lett.* 15:979-984
	D10		Tomme, *et al.* (1995) Cellulose hydrolysis by bacteria and fungi. *Adv. Microb. Physiol.* 37:1-81
	D11		Wood *et al.* (1988) Methods for measuring cellulase activities. *Methods in Enzymology* 160:87-112
	D12		Wood, *et al.* (1992) Ethanol production from cellobiose, amorphous cellulose, and crystalline cellulose by recombinant Klebsiella oxytoca containing chromosomally integrated Zymomonas mobilis genes for ethanol production and plasmids expressing thermostable cellulase genes from Clostridium thermocellum. *Appl. Environ. Microbiol.* 58(7):2103-10
	D13		Wood *et al.* (1997) Production of recombinant bacterial endoglucanase as a co-product with ethanol during fermentation using derivatives of *Escherichia coli* KO11. *Biotech. Bioeng.* 55:547-555
	D14		Woodward, J. (1991) Synergism in cellulase systems. *Bioresource Technol.* 36:67-75
	D15		Wyman, C.E. *et al.* (1995) Economic fundamentals of ethanol production from lignocellulosic biomass. *Amer. Chem. Soc. Symp.* 618:272-290
	D16		Yomano *et al.* (1998) Isolation and characterization of ethanol-tolerant mutants of Escherichia coli KO11 for fuel ethanol production. *J. Ind. Microbiol. Biotechnol.* 20(2):132-8
	D17		Zhou, S. *et al.* (1999) Enhancement of expression and apparent secretion of *Erwinia chrysanthemi* endoglucanase (encoded by *celZ*) in *Escherichia coli* B. *B. Appl. Environ. Microbiol.* 65:2439-2445

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OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

	E1		Zhou, S. *et al.* (1999) Engineering endoglucanase-secreting strains of ethanologenic *Klebsiella oxytoca* P2. *J. Indust. Microbiol. Biotechnol.* 22:600-607
	E2		Zhou, S. *et al.* (2000) Synergistic hydrolysis of carboxymethyl cellulose and acid-swollen cellulose by two endoglucanases (CelZ and CelY) from *Erwinia chrysanthemi. J. Bacteriol.* 182:5676-5682
	E3		Zhou, S. *et al.* (2001) Gene integration and expression and extracellular secretion of *Erwinia chrysanthemi* endoglucanase CelY (*celY*) and CelZ (*celZ*) in ethanologenic *Klebsiella oxytoca* P2. *Appl. Environ. Microbiol.* 67: 6-14

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